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With the author's best regards.

BULLETIN

OF THE

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west!

BEES OF NORTHERN WISCONSIN

BY S. GRAENICHER

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BEES OF NORTHWESTERN WISCONSIN

By S. Graenicher.

Up to the present time nothing has been published on the bee fauna of this part of Wisconsin.† The bees which form the subject of this paper were obtained on two collecting expeditions of the Milwaukee Public Museum. On the first of these the members of the party proceeded in boats down the St. Croix River, from its headwaters at the Upper St. Croix Lake in Douglas Co. on to Hudson in St. Croix Co., about 20 miles above the juncture of the St. Croix and Mississippi Rivers. The time spent was from July 7 to August 14, 1909, and collections were made at the following localities and on the following dates:

Solon Springs (Upper St. Croix Lake), Douglas Co., July 7-15.
Gordon, Douglas Co., July 16.
St. Croix Dam, Douglas Co., July 17-22.
Coppermine Dam, Douglas Co., July 23.
Fishtrap, Burnett Co., July 24.
Mouth of Nemakagon River, Burnett Co., July 25-26.
Swiss, Burnett Co., July 27.
Mouth of Yellow River, Burnett Co., July 28-August 2.
Kettle River Rapids,* Burnett Co., August 4.
Randall, Burnett Co., August 5-7.
Never's Dam, Polk Co., August 9.
Farmington, Polk Co., August 11-12.
Hudson, St. Croix Co., August 13-14.

The expedition of 1910 selected Hudson, the terminal of the St. Croix expedition, as the starting point, remaining there from July 6-12. Five more weeks were spent at the following points along the Mississippi River:

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†After this paper had gone to the printer, the author received through the kindness of Mr. Chas. W. Metz the latter's "Revision of the Genus Prosopis in North America" (Trans. Am. Ent. Soc. XXXVII, No. 2, pp. 85-156, plates II-IX), in which two species are reported from Wisconsin. The exact locality is not mentioned, but judging from the shaded area on the accompanying map they were collected in some part of northwestern Wisconsin.

*Rapids of the St. Croix River above the mouth of the Kettle River.

Prescott, Pierce Co., July 13-26.
Maiden Rock, Pierce Co., July 27-August 10.
Fountain City, Buffalo Co., August 11-17.

Altogether 166 species of bees are dealt with in this paper, 7 of which are new (*Colletes vicinalis, Sphecodes solonis, Halictus nigroviridis, Andrena nivaloides, Nomada wisconsinensis, Nomada cockerelli, Triepeolus obliteratus*), and descriptions of which will be found further on; 3 additional new species from the St. Croix region (*Perdita pallidipennis, Perdita citrinella* and *Anthidium chippewaense*) were described in the Canadian Entomologist, Vol. XLII (1910), pp. 101-104 and 157-160.

A BEE OF NOCTURNAL HABITS.

At Prescott, Pierce Co., Wis., *Sphecodogastra texana* Cr. was observed carrying on its work during the hours of the night, collecting pollen and nectar from the flowers of an evening primrose: *Oenothera rhombipetala* Nutt. This plant grows in patches along the sandy bluffs at Prescott, and it occurs also in great numbers at several places in the sandy river bottoms between Prescott and Maiden Rock. The females of *Sphecodogastra texana* begin to arrive at the flowers some time after sunset. On July 14th the first one made its appearance at 7 minutes past 8 o'clock, on the following evening a few minutes earlier. They were observed on several evenings, and on July 15th the flowers were inspected as late as 10 p.m. and a number of the bees found in activity. They were never seen on these flowers in the daytime, not even in the early morning after sunrise, when the flowers were still open. Nor were they met with on any other flowers of that region.

Specimens of *Sphecodogastra texana* found in New Mexico (reported by Prof. T. D. A. Cockerell in Trans. Am. Ent. Soc., Vol. XXV, p. 185, December, 1898) seem to differ somewhat in their habits from those of the Wisconsin region. They were captured in the daytime on the following flowers:

1. A ♂ and a ♀ on *Senecio douglassii* at Las Cruces, Oct. 17 (E. A. Wooton).
2. A ♀ on pear blossoms at Mesilla, April 13, 1895 (Jessie Casad).

Prof. Cockerell has kindly re-examined these specimens, and informed me that the ♂ has large ocelli, the same as the ♀, and that neither one of the ♀♀ carries any pollen. I am also indebted to Prof. Cockerell for having compared a specimen of the bees from Prescott with his New Mexico material, and having found them to be conspecific.

The extraordinary size of the ocelli distinguishes this bee from any other species of our region. This character represents an adaptation to nocturnal habits, and it is present in the South American genus *Megalopta* F. Smith, the habits of some of the species of which have been made known by Ducke[1] in Pará (Brazil). According to this author the bees were found during the day in dense woods, but rarely on the wing, while in the evening females loaded with pollen were captured, mostly flying around the lamp. Ducke further states that *Megalopta* is not a Panurgine bee, as considered by Smith, but that it comes closest to *Halictus*. In this respect it agrees with the N. Am. genus *Sphecodogastra,* which is simply an *Halictus* adapted to nocturnal life. Described in 1872 by Cresson (Hymenopt. texana, Tr. Am. Ent. Soc. IV, 249) as *Sphecodes texana* from specimens collected in Texas, it was referred by Prof. Cockerell (loc. cit.) to *Halictus* in 1898, and Ashmead created in 1899 (Classification of the bees, or the superfamily *Apoidea.* Trans. Am. Ent. Soc. Vol. XXVI, pp. 49-100) the genus *Sphecodogastra,* based on the size of the ocelli.

Prof. Cockerell has called my attention to Bingham's statements (Brit. Ind. Hymenopt., 1, p. 534), according to which the bee *Xylocopa rufescens* Smith is "crepuscular, on fine moonlight nights its loud buzzing can often be heard all night long." From Prof. Cockerell I have the following information: "I possess a male of *Xylocopa rufescens,* and observe that it has very large ocelli (transverse diameter of middle ocellus 1020 μ)."

Some species of *Megacilissa* are known to be nocturnal. In New Mexico Prof. C. H. T. Townsend captured specimens of *Megacilissa yarrowi* Cr. at the flowers of *Datura meteloides* and *Lippia Wrighti*

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(1). Neue Beob. ueber d. Bienen d. Amazonaslaender. Zeits. f. wissens. Insektenbiol. Vol. II, pp. 51-60 (1906).

in the early morning before sunrise during the first week in September (reported by T. D. A. Cockerell and Willmatte Porter, Contr. New Mex. Biol. St., Observ. on bees, with descr. of new genera and species, Ann. & Mag. Nat. Hist. Vol. IV, series 7, pp. 403-421, December, 1899). From observations on *Megacilissa matutina* and *M. eximia,* two South American species, Schrottky concludes that "on warm nights the *Megacilissae* are flying all night long." (C. Schrottky, A contr. to the knowl. of some S. Am. Hymen., chiefly from Paraguay. Smiths. Miscell. coll., Vol. XLVIII, p. 259, Feb. 4, 1907.)

The social wasps of South America of the genus *Apoica* fly during the night, and some of our solitary wasps belonging to the family *Mutillidae* (*Photopsis* and *Brachycistis*) are likewise nocturnal in their habits. The males of the latter have large ocelli, while in *Apoica* both sexes are supplied with them. In the *Mutillidae* the females are wingless and crawl over the ground; the males possess wings, and fly around in search of the females. The enlargement of the ocelli in one sex, while in the opposite sex no such enlargement is noticeable, may be explained by the difference in habits. In *Apoica* both sexes are winged and both supplied with large ocelli.

In *Sphecodogastra texana* we are dealing with a typical nocturnal species, and this view is strengthened by the fact, that the two females taken on flowers in the daytime in New Mexico had not collected any pollen from the flowers. It will be noted that one of these females was obtained in April, and the other in October, and this leads us to conclude that *S. texana* produces at least two broods a year, as is the case with most, if not all, of the species of *Halictus.*

In 1903 Prof. T. D. A. Cockerell (Can. Ent. Vol. XXXVI, p. 342, 1903) described a bee *Halictus galpinsiae* which he observed in New Mexico on the flowers of *Gaura coccinea* and *Galpinsia fendlerii* (an evening primrose) after sunset, and this has the ocelli larger in proportion than those of the ordinary species of *Halictus,* but, as Prof. Cockerell informs me, "not larger than those of the closely related *H. aberrans* Crawf., which is diurnal." At any rate either of these species is far behind *S. texana* as regards the size of the ocelli.

The flowers of the evening primrose, *Oenothera rhombipetala*, begin to open late in the afternoon, and remain open until about half past 9 o'clock in the forenoon. Early in the forenoon and towards evening they are visited by several other species of bees, as also by some other insects, and by the humming bird. Some bees are in the habit of forcing their way into these flowers when closed, and of *Oenothera biennis* we have been informed by Robertson[2] that a diurnal bee *Anthedon* (*Melissodes*) *compta* collects its pollen exclusively from the flowers of that species. In these flowers the pollen grains are large and cling together, being connected by cobweb-like threads, and accordingly the bee *Anthedon compta* has the pollen-collecting brushes on the hind legs (scopae) loose, and thinly plumose as pointed out by Robertson. A comparison of our species of *Halictus* with *Sphecodogastra texana* shows that in the latter the scopae are looser than in the former.

OLIGOTROPIC BEES.

Most of our bees visit a large variety of flowers, and have, for this reason been called polytropic by Loew.[3] For bees limiting their visits to a few species of flowers only, this author introduced the term oligotropic. Robertson[4] restricted the use of this latter term to such bees as collect their pollen from the flowers of a single species, or from several more or less closely related species (belonging to the same genus, or at least to the same family).

The occurrence of such an oligotropic bee in a given region is dependent on the presence of the particular plant or plants which furnish the pollen. Of the bees considered in this paper the following 30 species represent oligotropic species in Robertson's sense:

Species of Bee.	Plants Furnishing Pollen.
Prosopis illinoiensis Rob.	*Umbelliferae* (Robertson).
Colletes eulophi Rob.	*Compositae* "
" *armatus* Patton.	" "

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(2). Chas. Robertson. Flower visits of oliogotropic bees. Bot. Gaz. XXXII (1901), p. 367.

(3). E. Loew. Blumenb. v. Insekt., etc. Jahrb. bot. Gart. Berlin. III (1884).

(4). Chas. Robertson. Flowers and insects XIX. Bot. Gaz. XXVIII (1899), p. 27.

Colletes latitarsis Rob.	*Physalis*—species (Robertson).
" *aberrans* Ckll.	*Petalostemum*-species (Cockerell)
Halictus nelumbonis Rob.	*Nymphaeaceae* (Robertson).
Andrena peckhami Ckll.	*Compositae.*
" *clypeonitens* Ckll.	"
" *nubecula* Sm.	" (Robertson).
" *asteris* Rob.	" "
" *aliciae* Rob.	" "
" *rudbeckiae* Rob.	" "
" *helianthi* Rob.	" "
" *solidaginis* Rob.	" "
Panurginus asteris Rob.	" "
" *rudbeckiae* Rob.	" "
Halictoides marginatus Cr.	*Helianthus*--species. "
Macropis ciliata Patton.	*Steironema*—species.
" *morsei* Rob.	" "
Perdita maura Ckll.	*Physalis*—species (Cockerell).
" *citrinella* Graen.	*Petalostemum villosum.*
" *pallidipennis* Graen.	*Compositae.*
Megachile pugnata Say.	" (Robertson).
" *campanulae* Rob.	*Campanula americana* "
Melissodes cnici Rob.	*Cirsium*—species "
" *agilis* Cress.	*Compositae* "
" *trinodis* Rob.	" "
" *vernoniae* Rob.	*Vernonia*—species "
Xenoglossa strenua Cress.	*Cucurbitaceae* (Cockerell).
Anthophora walshii Cress.	*Cassia Chamaecrista* (Robertson)

The plant families are represented as follows:

Nymphaeaceae	1	species	of	oligotropic	bees.
Umbelliferae	1	"	"	"	"
Leguminosae	3	"	"	"	"
Solanaceae	2	"	"	"	"
Campanulaceae	1	"	"	"	"
Cucurbitaceae	1	"	"	"	"
Primulaceae	2	"	"	"	"
Compositae	19	"	"	"	"

More than one half of the oligotropic bees of this list depend for their pollen on the *Compositae*. *Rudbeckia hirta, R. laciniata, Heliopsis scabra, Lepachys pinnata,* species of *Aster, Solidago, Helianthus, Liatris, Eupatorium, Cirsium, Vernonia fasciculata,* and *Boltonia asteroides* are the most important species of the region in this respect. Among the plants belonging to some other family *Physalis pubescens* may be mentioned; this species, which is rather common throughout our region, is visited by *Perdita maura* and *Colletes latitarsis*. Two species of oligotropic bees pay their attention to *Petalostemum villosum,* a plant inhabiting the dry sandy slopes at Randall, Burnett Co., North Hudson, St. Croix Co., and Prescott, Pierce Co. The flowers of this plant furnish pollen to *Colletes aberrans* and *Perdita citrinella.*

LIST OF BEES COLLECTED IN THE REGION.

Prosopis Fabricius.

1. **P. basalis** Sm. A boreal species (type locality Hudson Bay). Rather common at Solon Springs (Douglas Co.), and found also in Burnett and St. Croix Cos. (Hudson).

2. **P. modesta** Say. This and the following species are extremely variable. The ♂♂ of the two differ in the absence (*illinoiensis*), or presence (*modesta*) of punctures on the first abdominal segment. The ♀♀ are not as easily separated. Specimens from Douglas, Burnett, St. Croix and Pierce Cos.

3. **P. illinoiensis** Rob. Douglas, Burnett, Polk and Pierce Cos. Taken on the flowers of *Cicuta maculata* and *Sium cicutaefolium.*

4. **P. ziziae** Rob. Specimens from the mouth of the Yellow River in Burnett Co., Prescott and Maiden Rock in Pierce Co.

5. **P. varifrons** Cress. The light markings on clypeus, scape and tegulae are quite variable in both sexes. Collected at Solon Springs in Douglas Co., the mouth of the Nemakagon River in Burnett Co. and Maiden Rock in Pierce Co.

6. **P. verticalis** Cress. Douglas, Burnett, and Pierce Cos.

7. **P. pygmaea** Cress. A very common species throughout the region. Specimens from Douglas, Burnett and Pierce Cos.

8. **P. saniculae** Rob. Maiden Rock in Pierce Co. and Fountain City in Buffalo Co. The specimens from this region are more slender and decidedly smaller than those from eastern Wisconsin (Milwaukee and Washington Cos.).

Colletes Latreille.

9. **C. aberrans** Ckll. Found only on *Petalostemum villosum* at Randall, Burnett Co., Hudson, St. Croix Co., and Prescott, Pierce Co.

10. **C. eulophi** Rob. A visitor of the *Compositae*. Taken at Gordon, Douglas Co., and from there on along the St. Croix and Mississippi rivers at various points in Burnett, St. Croix and Pierce Cos.

11. **C. armatus** Patton. This too is an oligotropic visitor of the *Compositae*. Mouth of the Yellow River, Kettle River Rapids, and Randall in Burnett Co.

12. **C. brevicornis** Rob. 1 ♀ from Hudson in St. Croix Co.

13. **C. nudus** Rob. Mouth of the Yellow River and Randall in Burnett Co., and Prescott, Pierce Co.

14. **C. latitarsis** Rob. Not found on any other plant than *Physalis pubescens* at Hudson, St. Croix Co., Prescott and Maiden Rock, Pierce Co.

15. **C. vicinalis** n. sp.

♀. This belongs to the group with dark hairs on the thorax above, and it runs in Swenk's[5] table to *distinctus*, a southern species, but it has the two basal abdominal segments slightly punctate, and the antennal joint 3 longer than 4. Length about 10 mm. Clypeus shining, convex and somewhat sulcate, with distinct striate punctures. Mandibles black, piceous at the apex. Malar space at least half as long as wide. Supraclypeal area shining, more closely and finely punctured than the clypeus. Sides of the face dull, with feeble shallow punctures. Vertex, occiput and cheeks shining, finely and very closely punctured, especially the cheeks. Head clothed with a dirty-white pubescence, which is long and copious on the upper portion of the face and on the cheeks below. Antennae black, all of the joints from the fourth on as long as wide. Mesonotum shining, with distinct punctures, which are

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(5). Myron Harmon Swenk. Specific characters of the bee genus Colletes. Contrib. Dept. Ent. Univ. Nebr. July, 1908.

close anteriorly, and become scattered towards the scutellum. The latter is shining and punctured the same as the adjoining portion of the mesonotum. Superior face of metathorax formed by a series of narrow, moderately deep pits. Pubescence of the thorax of the same color as that of the head, except in the region of the scutellum where dark hairs are intermixed with the whitish ones. Tegulae black. Wings slightly dusky, with dark brown nervures and stigma. Legs black, clothed with whitish pubescence. No spines on anterior coxae. Dimensions of the tarsal joints about the same as in *distinctus*. Abdomen broad, shining, with apical bands of white pubescence on segments 1 to 5, and a basal band on segment 2. The latter band, as also the apical one on segment 1 is thin and widely interrupted. Punctures very small on all of the segments, barely noticeable on 1 and 2. Segments depressed apically about one-fifth.

Type: Solon Springs, Douglas Co., Wis., taken between July 7 and 15, 1909 (No. 28449).

Two paratypes from the same locality taken together with the type (Nos. 28450 and 28451). Type and paratypes in the collection of the Publ. Museum of Milwaukee. In one of the paratypes (28450) the apical hair bands have nearly disappeared through rubbing.

Sphecodes Latreille

16. **S. arvensis** Patton. A common species in Burnett, Polk, St. Croix and Pierce Cos.

17. **S. davisii** Rob. One ♀ from Prescott, Pierce Co.

18. **S. prosphorus** Lov. and Ckll. Type locality: Waldoboro, Maine. Through the kindness of Mr. John H. Lovell I have had the loan of a ♂ and a ♀ from the type locality. 2 ♀♀ from Solon Springs, Douglas Co., and 1 ♀ from Maiden Rock, Pierce Co., agree with the Maine specimens.

19. **S. cressonii** Rob. 1 ♀, mouth of the Yellow River, and 1 ♀, Randall, both localities in Burnett Co.

20. **S. solonis** n. sp.

♀. Length about 7 mm. Head and thorax black; the first three segments of abdomen red, fourth and fifth intensely black, the sixth dark, tinged with red. Head broad, shining, especially so on vertex and clypeus. Punctures of the face finer and closer than those of vertex and clypeus. Face barely covered with short and sparse white pubescence. Mandibles distinctly notched, black at base, otherwise red, with dark apices. Antennae black, somewhat brownish towards the tips. Joint 3 a little longer than 4; 2 and 4 subequal. Mesonotum very shiny, with small shallow punctures, which are not close. Median sulcus and parapsidal grooves poorly developed. Disk of metathorax not distinctly defined, with numerous raised lines. Truncation of metathorax enclosed by a circular rim, and divided by a prominent median vertical ridge. The enclosed surface contains shallow reticulations. Mesothoracic and metathoracic pleurae roughened, the latter more finely so than the former. Abdomen broad, slightly narrowed towards the base; surface shining, with hardly a trace of punctures, except some very minute ones on the bases of segments 3 to 5. On the venter the distribution of red and black is the same as on the upper side. Tegulae black, somewhat testaceous exteriorly. Wings hyaline with a dark-brown stigma, and black nervures. Second submarginal cell about half as long as third, narrowed one-third towards the marginal. First recurrent nervure joining the second submarginal cell beyond its middle. Legs black; knees, front tibiae anteriorly, middle and hind tibiae apically, and all the tarsi reddish-testaceous.

♂. Length nearly 6 mm. Body slender, shining and black, except a broad apical band on segment 1 of abdomen, a narrowed apical band on segment 2, and a still narrower subapical band on segment 3 which are testaceous. On the venter the coloration of the segments is the same as above. In the testaceous markings of the legs the male agrees with the female, and the antennae are testaceous beneath from about the 4th joint on to the tips. Antennal joint 4 about equal to 2 plus 3; joint 3 a trifle shorter than 2. Face below and especially the clypeus densely covered with short white pubescence, whereby the surface is hidden from view. Punctation of the head and thorax finer and closer than in the female. Tegulae darker throughout than in the other sex. On the disk of the metathorax the radiating lines are more numerous and better developed, and the whole area is more clearly defined than in the female. There is no rim around the metathoracic truncation, and the reticulations of its surface are closer than in the female.

Types: Solon Springs, Douglas Co., Wis., taken between July 7 and 15, 1909. (Nos. 32833 and 28399.) In the coll. of the Publ. Museum of Milwaukee.

This is a *Sphecodes* sens. strict. as understood by Robertson. The ♀ runs to *minor* in Robertson's table, but that species has the abdomen entirely red, the mesonotum not sulcate, etc. Among other characters the shiny surfaces of the body and the testaceous coloration of the tarsi and other parts of the legs may serve to distinguish *S. solonis* from some other closely related species.

Halictus Latreille.

21. **H. lerouxii** Lep. A species of wide distribution. Common throughout the Wisconsin region. Specimens taken at various points along the St. Croix and Mississippi Rivers, from Solon Springs in Douglas Co. to Maiden Rock in Pierce Co.

22. **H. parallelus** Say. Rather common at Prescott and Maiden Rock in Pierce Co. and Fountain City in Buffalo Co.

23. **H. provancheri** D. T. This is, to all appearances, the most common Halictus of our entire region. Taken at many places between Solon Springs in Douglas Co. and Fountain City in Buffalo Co.

24. **H. coriaceus** Sm. Specimens from Douglas, Burnett, Polk, St. Croix and Pierce Cos.

25. **H. ligatus** Say. Frequents mostly flowers of the *Compositae*. Prescott and Maiden Rock in Pierce Co., and Fountain City in Buffalo Co.

26. **H. nelumbonis** Rob. An oligotropic visitor of the *Nymphaeaceae*. 2 ♀♀ taken at Maiden Rock in Pierce Co.

27. **H. truncatus** Rob. A number of ♂ and ♀ specimens from Douglas, Burnett, Polk and St. Croix cos.

28. **H. arcuatus** Rob. Mouth of the Yellow River in Burnett Co., Prescott and Maiden Rock in Pierce Co.

29. **H. quadrimaculatus** Rob. 2 ♀♀ takes at Prescott in Pierce Co.

30. **H. foxii** Rob. 1 ♀ from the St. Croix Dam in Douglas Co., 1 ♀ from Hudson in St. Croix Co. and 1 ♂ from Maiden Rock in Pierce Co.

31. **H. pectoralis** Sm. Specimens from the mouth of the Yellow River and the Kettle River Rapids in Burnett Co., Farmington in Polk Co., Hudson in St. Croix Co., Prescott and Maiden Rock in Pierce Co. This species is very variable in size, especially in the ♂ sex.

32. **H. nymphalis** Sm. 4 specimens from Prescott and Maiden Rock in Pierce Co. represent undoubtedly the true *nymphalis*. Compared with a specimen of *H. mesillensis* Ckll. received from Prof. Cockerell it is found to be distinctly more brassy than *mesillensis*.

33. **H. vierecki** Crawf. An inhabitant of dry localities, found especially in sandy regions at the mouth of the Yellow River and at Randall in Burnett Co., Hudson in St. Croix Co., and Prescott in Pierce Co.

34. **H. tegularis** Rob. Numerous specimens from Hudson in St. Croix Co., Prescott and Maiden Rock in Pierce Co.

35. **H. cressonii** Rob. Solon Springs and Gordon in Douglas Co., Farmington in Polk Co., Hudson in St. Croix Co. and Maiden Rock in Pierce Co.

36. **H. albipennis** Rob. 2 ♀♀ from Farmington in Polk Co., 2 ♀♀ from Hudson in St. Croix Co. and 1 ♀ from Prescott in Pierce Co. The latter specimen is more finely and sparsely punctured on the mesonotum than those from the other localities, but in all other points it agrees with them.

37. **H. zephyrus** Sm. This is a very common species in eastern Wisconsin, but it seems to be rather rare in the northwestern part of the state. It was met with at Hudson in St. Croix Co., Maiden Rock in Pierce Co. and Fountain City in Buffalo Co.

38. **H. pilosus** Sm. Mouth of the Yellow River and Randall in Burnett Co., Hudson in St. Croix Co., Prescott and Maiden Rock in Pierce Co.

39. **H. sparsus** Rob. Solon Springs in Douglas Co., Prescott and Maiden Rock in Pierce Co. and Fountain City in Buffalo Co.

40. **H. pruinosus** Rob. 1 ♀ from Prescott in Pierce Co.

41. **H. connexus** Cr. Yellow River in Burnett Co., Never's Dam and Farmington in Polk Co., Hudson in St. Croix Co., Prescott and Maiden Rock in Pierce Co. and Fountain City in Buffalo Co.

42. **H. hortensis** Lov. Specimens from Hudson in St. Croix Co.; Prescott and Maiden Rock in Pierce Co. agree with specimens from the type locality (Waldoboro, Maine). I am greatly indebted to Mr. John H. Lovell for specimens of this, as also of the three following species which were described by him.

43. **H. viridatus** Lov. 2 ♀♀ from Hudson in St. Croix Co., 1 ♂ and 7 ♀♀ from Prescott, 2 ♀♀ from Maiden Rock in Pierce Co. The mesonotum in these Wisconsin specimens is more brassy and more strongly punctured than in the Maine specimens.

44. **H. versans** Lov. Solon Springs in Douglas Co., Hudson in St. Croix Co., Prescott and Maiden Rock in Pierce Co.

45. **H. oblongus** Lov. Numerous specimens from Solon Springs and Coppermine Dam in Douglas Co., the mouth of the Nemakagon River, Swiss and Randall in Burnett Co., Farmington in Polk Co., Hudson in St. Croix Co., Prescott and Maiden Rock in Pierce Co. and Fountain City in Buffalo Co.

46. **H. versatus** Rob. Solon Springs in Douglas Co., mouth of the Nemakagon River in Burnett Co. and Farmington in Polk Co.

47. **H. nigro-viridis** n. sp.

♀. Length nearly 7 mm. Head and thorax dark green, abdomen black. Face as broad as long, with distinct close punctures, those on the vertex being extremely close. Clypeus with a purplish hue and with coarser and fewer punctures. Cheeks broad, shining, finely punctured. Antennae black, slightly lighter udemeath towards the apex. Mesonotum shining, with sparse small and shallow punctures. Median sulcus very distinct, parapsidal grooves poorly developed. Base of metathorax surrounded by a semi-circular low rim. Enclosure with raised lines; of these the median one and about six on each side reach as far as the rim. Metathorax with a distinct truncation, the surface of which is finely roughened and is divided in the middle by a low vertical ridge. Wings smoky; stigma, nervures and tegulae dark testaceous, the latter blackish in front. Third submarginal cell about one and one-half times as long as the second, narrowed considerably towards the marginal. Legs dark, with the tarsi somewhat ferruginous. Inner spur of hind tibia with 5 teeth, those near the base rather long. Body clothed with ochreous pubescence, which is conspicuous on the legs, lower surface of abdomen and in the vicinity of the anal rima, but otherwise very short and sparse. Abdomen oval, smooth, shining and impunctate. When viewed from the side purplish tints are noticeable on the black ground color.

Type: Swiss, Burnett Co., July 27, 1909 (No. 32837). In the coll. of the Public Museum of Milwaukee. It is close to *H.* (*Chloralictus*) *atriventris* Crawf. (type locality: Goldstream, B. C.) but this has the head and thorax of a dark blue color, the apical margins of the abdominal segments testaceous, characters that separate it from *H. nigro-viridis.*

Sphecodogastra Ashmead.

48. **S. texana** Cr. Numerous ♀♀ at Prescott in Pierce Co. on the flowers of *Oenothera rhombipetala.* The nocturnal habits of this species have been discussed at the beginning of this paper.

Augochlora Smith.

49. **A. pura** Say. Common in Douglas Co. at Solon Springs, St. Croix Dam and Coppermine Dam. Not as frequent farther south. Specimens were obtained in Burnett, Polk and Pierce Cos.

50. **A. fervida** Sm. Not found in the northern parts; specimens were collected at Maiden Rock in Pierce Co. only.

51. **A. viridula** Sm. Mouth of the Nemakagon River, mouth of the Yellow River, Kettle River Rapids and Randall in Burnett Co., Prescott and Maiden Rock in Pierce Co.

52. **A. confusa** Rob. Solon Springs, Douglas Co., mouth of the Nemakagon River, mouth of the Yellow River and Randall in Burnett Co., Farmington in Polk Co., Maiden Rock in Pierce Co., and Fountain City in Buffalo Co.

53. **A. similis** Rob. Prescott, Pierce Co.

Agapostemon Smith

54. **A. radiatus** Say. Collected at the mouth of the Yellow River, and at Randall in Burnett Co., Hudson, St. Croix Co., Prescott and Maiden Rock, Pierce Co., Fountain City, Buffalo Co.

55. **A. viridulus** Fab. Farmington, Polk Co.; Hudson, St. Croix Co.; Prescott and Maiden Rock, Pierce Co.

56. **A. splendens** Lep. Solon Springs and St. Croix Dam in Douglas Co.; Randall in Burnett Co.; Hudson in St. Croix Co.; Maiden Rock in Pierce Co.

57. **A. texanus subtilior** Ckll. Specimens from Hudson in St. Croix Co., and Prescott in Pierce Co.

Eunomia Cresson.

58. **E. heteropoda** Say. Occurs in sandy spots at Hudson, St. Croix Co., Prescott and Maiden Rock, Pierce Co.

Andrena Fabricius.

59. **A. nivalis** Sm. Solon Springs and Gordon in Douglas Co.

60. **A. nivaloides** n. sp.

♀. Length about 9 mm. Black, with light ochreous pubescence. Head as broad as long. Clypeus smooth and shining, with distinct and close punctures on the sides; a narrow median stripe is impunctate. Process of labrum rounded. Mandibles black. Short thin pubescence on the sides of the face, around the antennae and on the lower side of the cheeks. Facial fovea more than half as wide as the distance between the eye and the lateral ocellus. From above, the facial fovea appears light ochreous; it is separated from the eye by a shining narrow line and extends below the antennal line. Antennae black, joint 3 as long as 4 plus 5. Cheeks not broad, slightly shining, with extremely fine reticulations. Mesonotum dullish anteriorly, shining posteriorly, minutely and sparsely punctured; there are delicate reticulations between the punctures. Scutellum with punctures larger and closer than on the mesonotum. Metathoracic area not sharply defined, its surface much rougher than that on the sides. Mesopleurae nearly bare, hardly shining. Tegulae dark testaceous, piceous in front. Wings dusky, nervures and stigma dark testaceous. Third submarginal cell nearly twice as long as second, narrowed one-half towards the marginal. Legs black, clothed with light ochreous pubescence. Tibial scopa formed by dense and moderately long, simple hairs. Hind metatarsus a little over half as broad as tibia at its greatest breadth. Abdomen shining, impunctate. Segment 2 depressed less than one-half, but more than one-third. Sparse light pubescence on dorsum of segment 1, thin interrupted apical hair-bands on segments 2 to 4. Anal fimbria dark brown. Apical hair-bands on ventral segments 2 to 5.

Type: Solon Springs, Douglas Co., Wis., taken between July 7 to 15, 1909 (No. 28433).

Paratypes: 2 ♀♀ from the type locality (Nos. 28410) and 28412) and 1 ♀ from the mouth of the Yellow River in Burnett Co., Wis., taken either Aug. 1 or Aug. 2, 1909 (No. 29634).

Types and paratypes in the coll. of the Publ. Museum of Milwaukee.

This species runs in Viereck's table for the females of the Connecticut *Andrenae* (Ent. News, Vol. XVIII, pp. 280-288, 1907) to *nivalis* and *placida,* both of which occur in Wisconsin. In color it resembles *nivalis,* but that is a much larger bee of heavier build, with the pubescence more ochreous, the clypeus more evenly punctured and less shining, the metathoracic area smoother, etc. *Placida* agrees in size with *nivaloides,* but the pubescence of head and thorax is whiter, the clypeus duller; above all the finger-shaped process of the labrum serves to distinguish *placida* from any other bee known to me from the Wisconsin region. On account of the shining clypeus, with its smooth median impunctate area *nivaloides* might be confounded with *clypeonitens* Ckll., but the latter has distinct uninterrupted abdominal hairbands and sooty anal fimbria.

61. **A. wheeleri** Graen. 1 ♀, Solon Springs, Douglas Co.

62. **A. crataegi** Rob. Specimens from Solon Springs and Gordon in Douglas Co.

63. **A. alleghaniensis** Vier. 3 ♀♀ from Solon Springs in Douglas Co. run to this species in Viereck's tables of Connecticut *Andrenae* (Ent. News, Vol. XVIII, pp. 280-288, 1907).

64. **A. vicina** Sm. Solon Springs in Douglas Co., and mouth of the Yellow River in Burnett Co.

65. **A. fragilis** Sm. Prescott in Pierce Co.

66. **A. peckhami** Ckll. An oligotropic bee, collecting its pollen from some of the *Compositae,* mostly from sunflowers. Taken at the mouth of the Nemakagon River and the mouth of the Yellow River in Burnett Co.; Farmington in Polk Co.; Hudson in St. Croix Co.; Prescott and Maiden Rock in Pierce Co., and Fountain City in Buffalo Co.

67. **A. clypeonitens** Ckll. Mouth of the Nemakagon River in Burnett Co.; Prescott and Maiden Rock in Pierce Co. This, too, like the foregoing, is an oligotropic visitor of the *Compositae.*

68. **A. nubecula** Sm. Maiden Rock in Pierce Co. on flowers of the *Compositae.*

69. **A. asteris** Rob. Maiden Rock in Pierce Co., visiting the flowers of *Aster*-species, but also taken on other composite flowers.

70. **A. aliciae** Rob. Never's Dam and Farmington in Polk Co.; Maiden Rock in Pierce Co., and Fountain City in Buffalo Co. On *Helianthus* and *Rudbeckia.*

71. **A. rudbeckiae** Rob. As the name implies, this species visits mostly flowers of some species of *Rudbeckia.* It is found most frequently on those of *R. hirta,* but at Prescott in Pierce Co. it was observed collecting pollen from the flowers of *Lepachys pinnata.* Taken also at Maiden Rock in Pierce Co.

72. **A. helianthi** Rob. Farmington in Polk Co.; Maiden Rock in Pierce Co., and Fountain City in Buffalo Co.

73. **A. solidaginis** Rob. Specimens from the mouth of the Yellow River in Burnett Co.; Maiden Rock in Pierce Co., and Fountain City in Buffalo Co.

74. **A. robertsonii** D. T. Solon Springs and Gordon in Douglas Co.; Swiss in Burnett Co., and Hudson in St. Croix Co.

75. **A. forbesii** Rob. Solon Springs in Douglas Co.

76. **A. multiplicata** Ckll. Taken at Solon Springs, Gordon, and St. Croix Dam in Douglas Co.; Fishtrap, mouth of the Nemakagon River, Swiss and mouth of the Yellow River in Burnett Co.

77. **A. obscura** Rob. Mouth of the Nemakagon River, mouth of the Yellow River, and Randall in Burnett Co.; Hudson in St. Croix Co., and Prescott in Pierce Co.

Macropis Panzer.

78. **M. morsei** Rob. This species visits the flowers of *Steironema ciliatum*. Taken at Solon Springs, Gordon and St. Croix Dam in Douglas Co.; mouth of the Nemakagon River, and mouth of the Yellow River in Burnett Co., and Hudson in St. Croix Co.

79. **M. ciliata** Patton. Visits the same flowers as the foregoing. Prescott and Maiden Rock in Pierce Co.

Halictoides Nylander.

80. **H. novae-angliae** Rob. Mouth of the Nemakagon River, mouth of the Yellow River and Randall in Burnett Co.; Farmington in Polk Co.; Hudson in St. Croix Co.; Prescott and Maiden Rock in Pierce Co.

81. **H. marginatus** Cr. 1 ♂ Farmington, Polk Co. A visitor of sunflowers.

Panurginus Nylander.

82. **P. asteris** Rob. On flowers of the *Compositae* at the mouth of the Yellow River in Burnett Co.; Farmington in Polk Co.; Prescott and Maiden Rock in Pierce Co.

83. **P. rudbeckiae** Rob. Also an oligotropic visitor of the *Compositae*. Specimens from the mouth of the Yellow River, Kettle River Rapids and Randall in Burnett Co.; Farmington in Polk Co.; Hudson in St. Croix Co., and Prescott in Pierce Co.

Calliopsis Smith.

84. **C. andreniformis** Sm. An extremely common species. Specimens from Solon Springs, Douglas Co.; mouth of the Yellow River and Randall in Burnett Co.; Hudson, St. Croix Co.; Prescott, Pierce Co., and Fountain City, Buffalo Co.

85. **C. verbenae nebraskensis** Crawf. Prescott and Maiden Rock in Pierce Co. Taken on the flowers of *Verbena hastata.*

Perdita Smith

86. **P. maura** Ckll. Taken at Hudson in St. Croix Co. and Prescott in Pierce Co. on the flowers of *Physalis pubescens.*

87. **P. bruneri** Ckll. One male taken at the Kettle River Rapids on the flowers of *Rudbeckia hirta.*

88. **P. citrinella** Graen. This species was described from specimens taken at Hudson, St. Croix Co. on the flowers of *Petalostemum villosum.* A specimen from Prescott in Pierce Co., also a ♀, like the type, agrees in general with the latter.

89. **P. pallidipennis** Graen. The specimens from which this species was described, were taken in 1909 along the St. Croix River, at the mouth of the Yellow River, the Kettle River Rapids, and Randall in Burnett Co. In 1910 specimens were collected at Prescott in Pierce Co. on the flowers of *Lepachys pinnata.* This species favors the flowers of several species of *Compositae.*

Nomada Fabricius.

90. **N. florilega** Lovell and Cockerell. Specimens from Solon Springs in Douglas Co., and the mouth of the Yellow River in Burnett Co. agree with the description.

91. **N. cressonii** Rob. Mouth of the Yellow River, Burnett Co.

92. **N. articulata** Sm. Farmington in Polk Co., and Maiden Rock in Pierce Co.

93. **N. graenicheri** Ckll. (Can. Ent. Vol. XXXVII, p. 189, ♀.)

The ♀♀ show the following variations: The yellow spots on labrum, clypeus and supraclypeal area are either indistinct, or entirely absent. Middle coxae also marked with yellow. Posterior tibiae blackened in front, and behind. Only the first 2 joints of the antennae red.

♂. First joint of antennae (scape) robust. Yellow bands on abdominal segments 1 to 6. Segment 7 very slightly notched, the notch in some of the specimens hardly noticeable. Otherwise the male resembles the female rather closely.

11 ♂♂ and 7 ♀♀ taken at the following localities: 1 ♂ at the mouth of the Yellow River, Burnett Co., between July 28 and 31, 1909; 1 ♀ at Hudson, St. Croix Co., August 13, 1909; 10 ♂♂ and 6 ♀♀ at Maiden Rock, Pierce Co., between August 4 and 10, 1910.

94. **N. wisconsinensis** n. sp.

♀. Length about 9 mm. Pubescence light, extremely sparse and short, hardly noticeable. Punctures of the head close and strong on the vertex, becoming shallower and more scattered on the lower sides of the face, and on the clypeus. Cheeks narrow. Joint 3 of antennae longer than 4. Antennae reddish at base, gradually becoming darker towards the apex. A sharp ridge between the base of the antennae. Yellow lateral facemarks reaching up as high as the lower ocellus, broadening out below, and gradually assuming the dark ferruginous color of the lower region of the face and clypeus. A slight yellow mark behind the summit of the eye. Labrum and mandibles of a lighter ferruginous color, the mandibles with a yellow line at base. Mandibles simple. Mesothorax very coarsely punctured. A broad line on collar, tubercles, scutellum, postscutellum, a spot on pleura beneath the base of the hind wing, and a small linear mark in front of this (beneath the tubercle) lemon-yellow. On one side these two pleural marks are separate, on the other slightly connected. Scutellum with two distinct lobes. Metathorax rather smoothish, with indistinct punctures. Abdomen shining, closely and finely punctured. Segment 1 has the punctures shallower and farther apart than the remaining segments. Yellow markings on the abdomen as follows: a very narrow subapical band on segment 1, a broader one, narrowed medially on segment 2, two widely separated cuneate yellow marks, pointed mesad on segment 3, a slightly interrupted band on segment 4, and a broad band narrowed medially and hardly interrupted on segment 5. Venter entirely black. Wings dusky. Stigma testaceous, nervures fuscous. Tegulae and base of costal nervure yellow. Basal nervure interstitial with the transverse medial nervure. Legs reddish. Front coxae simple. Middle and posterior coxae each with a yellow spot along the external margin. A faint dark line on anterior surface of hind femur, and a yellow spot near the apex of hind tibia exteriorly.

♂. Length about 10 mm. Clypeus, supraclypeal mark, lateral facemarks, labrum, and mandibles entirely yellow, the tips of the latter with a slight reddish tinge. Antennae dark above, reddish below, except at extreme tip. The two pleural marks are united on both sides. Abdominal bands on segments 1 to 6 narrowed medially, interrupted on 6 only. Segment 7 strongly notched. Hind femora black on basal two-thirds.

Types: Randall, Burnett Co., August 5-7, 1909 (Nos. 29751 and 29752).

Paratypes: 1 ♂, mouth of the Yellow River, Burnett Co., between July 28 and 31, 1909; 2 ♂♂, Prescott, Pierce Co., between July 13 and 19, 1910; 1 ♂, Maiden Rock, Pierce Co., between August 4 and 10, 1910; 2 ♂♂, Fountain City, Buffalo Co., between August 12 and 17, 1910. These males are very variable in size, the smallest one (Maiden Rock) being only 7 mm. long.

Types and paratypes in the coll. of the Public Museum of Milwaukee.

In its general appearance this species resembles *Nomada* (*Cephen*) *texana* Cress. rather closely, but the spine on the front coxa is entirely lacking.

95. **N. cockerelli** n. sp.

♂. Length 8 mm. Black with cream-colored markings. Head and thorax thinly clothed with short white pubescence, longest on the under sides. Mandibles simple, cream-colored with ferruginous tips. Labrum, broad apical margin of clypeus, and a narrow facial mark on each side below (adjoining the clypeal mark) creamy. Face slightly shining, finely and closely punctured. Punctures of the vertex coarser, but not as close. Antennae dark above, reddish beneath along their entire length. Joint 3 somewhat longer than 4. No spine on front coxae. Thorax dull with close punctures. A line on collar, tubercles, and two spots on scutellum creamy white. Scutellum produced, slightly bilobed. Metathorax smoother and with a much finer punctation than the other regions of the thorax. Wings dusky, especially so in the apical region. Nervures and stigma fuscous. Basal nervure ending a trifle basad of transverse medial nervure. Outer half of tegulae yellowish, inner half rufo-piceous. Abdomen shining, with dense minute punctures. Cream-colored markings as follows: slightly interrupted bands, narrowed towards the middle on segments 2 to 4, broadest on 2; narrow entire bands on segments 5 and 6. The band on segment 5 is emarginate on each side anteriorly. Bands of the same color on ventral segments 2 to 5. Segment 7 entire. Coxae and trochanters black. Anterior and middle femora black on posterior surface, reddish-yellow at tip, and along the anterior surface. Posterior femora black with reddish-yellow tips. Anterior and middle tibiae reddish-yellow in front, black behind. Posterior tibiae black, with a yellow ring at base and a yellow blotch at apex exteriorly, these two markings being connected by a narrow yellow line along the outer margin of the tibia. Tarsi reddish-yellow, those of the hind legs darkened on the outer surface.

Type: Hudson, St. Croix Co., between July 6 and 12, 1910 (No. 37769).

Paratype: Mouth of the Yellow River, Burnett Co., between July 28 and 31, 1909. A specimen belonging to this same species, taken in Milwaukee Co., was sent to Prof. T. D. A. Cockerell some time ago, and Prof. Cockerell kindly suggested that it might be new. In Robertson's tables it runs to *placida,* but that has yellow markings, and differs otherwise. Types and paratypes in the coll. of the Publ. Museum of Milwaukee.

Viereckella Swenk.

96. **V. pilosula** Cress. This is the *Nomada pilosula* described by Cresson, as stated by Mr. H. L. Viereck, who had the kindness to compare a specimen from Milwaukee with the type. Prof. Cockerell, to whom also a specimen was sent, places it in *Viereckella.* It is not rare in Wisconsin, and in the region considered in this paper specimens were obtained at Solon Springs and St. Croix Dam in Douglas Co., mouth of the Yellow River, Kettle River Rapids and Randall in Burnett Co., Hudson in St. Croix Co., Prescott and Maiden Rock in Pierce Co.

Epeolus Latreille.

97. **E. bifasciatus** Cress. Specimens from Randall, Burnett Co., Farmington, Polk Co., and Hudson, St. Croix Co.

98. **E. pusillus** Cress. 1 ♂ from Maiden Rock in Pierce Co. This specimen has the antennae entirely black.

99. **E. lectoides** Rob. 2 ♂♂, 1 ♀ from the mouth of the Yellow River in Burnett Co., 1 ♀ from Hudson in St. Croix Co. and 1 ♂ from Prescott in Pierce Co. All of these agree in detail with the description.

100. **E. scutellaris** Say. 6 specimens which are referred to this species were taken in the following localities: 1 ♀, Kettle River Rapids; 1 ♂ and 1 ♀ at Randall in Burnett Co.; 1 ♂ and 2 ♀♀ at Prescott in Pierce Co. They show a great deal of variation in the

distribution of red. In one ♀ the entire clypeus, the pleurae to a considerable extent and the vertex wholly red, in the other specimens these parts red to a slight extent only.

Argyroselenis Robertson.

101. **A. minima** Rob. St. Croix Dam in Douglas Co.; the mouth of the Yellow River and Kettle River Rapids in Burnett Co.; Hudson in St. Croix Co.; Prescott and Maiden Rock in Pierce Co. In three of the ♀ ♀ the bands on abdominal segments 1 and 2, as also that on 3 interrupted. In the ♂ the labrum and the first three joints of the antennae mostly black.

Triepeolus Robertson.

102. **T. simplex** Rob. Prescott and Maiden Rock in Pierce Co. and Fountain City in Buffalo Co. In all of these specimens the first 3 antennal joints are tinged with red, not only in the ♂ ♂, but in the ♀ ♀ also.

103. **T. concavus** Cr. 2 ♀ ♀ from Maiden Rock in Pierce Co.

104. **T. cressonii** Rob. This species was rather common at Maiden Rock in Pierce Co. on the flowers of *Verbena hastata* and *Vernonia fasciculata*. It was taken besides at the mouth of the Yellow River, Kettle River Rapids and Randall in Burnett Co., and Fountain City in Buffalo Co.

105. **T. donatus** Sm. Randall in Burnett Co.; Farmington in Polk Co., and Maiden Rock in Pierce Co.

106. **T. lunatus** Say 7 ♂ ♂, Prescott, and 1 ♀, Maiden Rock in Pierce Co.

107. **T. concolor** Rob. 2 ♂ ♂, Prescott, and 1 ♀, Maiden Rock in Pierce Co.

108. **T. obliteratus** n. sp.

♀. Length 9 mm. Black, with cinereous markings. Face densely covered with silvery pubescence, hiding the close and fine punctures from view. There is also a covering of glittering pile on cheeks and occiput. These parts are finely punctured. Vertex shining, more coarsely punctured. Antennae black, with the apex of the scape ferruginous. Mandibles black with ferruginous tips; the labrum ferruginous along the lateral borders. Mesonotum finely punctured, with 2 distinct cinereous lines which do not reach the transverse line in front. Pleurae broadly covered with cinereous pubescence above, shining, closely and coarsely punctured below. Scutel bilobed, slightly prominent; lateral teeth black, sharp, conical, much shorter than the lobes. Wings dusky along the margin. Nervures and stigma black, tegulae reddish-testaceous. In each wing the second transverse-cubital nervure is incompletely developed, only one-half of it (adjoining the cubital) being present. Femora and tibiae basally and apically, front and middle tibiae anteriorly, and all the tarsi red. Legs otherwise black, with a short glittering pile. Tibial spurs black. Cinereous border of abdominal segment 1 not broader on the sides; the uncovered black transverse patch long and narrow. Apical bands on segments 1 to 4 uninterrupted. The patch along each side of segment 2 (proceeding from the apical band) is broad, pointed and bent towards the middle, forming a comma-shaped marking. A triangular cinereous patch on each side of the dorsum of segment 5; middle of the segment slightly shining, finely punctate, with concave apex. Apex of pygidium truncate. Broad apical bands on ventral segments 2 to 4. Ventral segment 5 straight, sparsely covered with glittering pile near the apex.

♂. Agrees in general with the ♀, but is a trifle smaller. More ferruginous on the labrum than in the ♀, and first 3 joints of antennae black, mixed with ferruginous. The 2 longitudinal lines on the mesonotum longer, and reaching the anterior transverse band. Tegulae more reddish than in the other sex, and tubercles also red. There is only an extremely short stump of a second transverse-cubital nervure on the cubital nervure in each wing; the latter has practically only 2 submarginal cells. Legs red with very little black on femora and tibiae. Abdomen with 6 apical hair-bands, the 1st interrupted; the 6th whiter than the others.

Types: ♀ taken at the mouth of the Yellow River in Burnett Co., Wis., between July 28 and 31, 1909 (No. 29595). ♂ from Prescott in Pierce Co., Wis., taken between July 13 and 19, 1910 (No. 39317). Types in the coll. of the Publ. Museum of Milwaukee.

This species looks like a *T. donatus* with red legs (black in *donatus*); the cinereous pubescence has a more yellowish tint than in *donatus*. Both of the specimens have the second transverse cubital nervure more or less obliterated in both wings.

Melecta Latreille.

109. **M. interrupta** Cr. A ♂ specimen from Maiden Rock in Pierce Co.

Coelioxys Latreille.

110. **C. texana** Cr. Solon Springs in Douglas Co.; mouth of the Nemakagon River, Swiss, mouth of the Yellow River and Kettle River Rapids in Burnett Co., and Prescott in Pierce Co.

111. **C. moesta** Cr. Solon Springs and Coppermine Dam in Douglas Co.; mouth of the Yellow River and Randall in Burnett Co.

112. **C. ribis** Ckll. Specimens from Douglas Co. (Solon Springs) and Burnett Co. (mouth of the Yellow River) agree quite closely with a specimen received from Prof. Cockerell.

113. **C. lucrosa** Cr. Solon Springs in Douglas Co.

114. **C. modesta** Cr. St. Croix Dam in Douglas Co. and Prescott in Pierce Co.

115. **C. rufitarsis** Sm. This is one of our most common species of *Coelioxys*. Taken at Solon Springs and Gordon in Douglas Co.; the mouth of the Yellow River in Burnett Co.; Farmington in Polk Co.; Hudson in St. Croix Co., and Prescott in Pierce Co.

116. **C. octodentata** Say. Randall in Burnett Co.

~~**Stelis** Panzer~~. Chelynia Provancher

C.

117. ~~**S.**~~ **subemarginata** Cress. Solon Springs in Douglas Co.

118. ~~**S.**~~ C. **nitida** Cress. Solon Springs in Douglas Co.

Dianthidium Cockerell.

119. **D. simile** Cress. Specimens from Swiss and the mouth of the Yellow River in Burnett Co.; Hudson in St. Croix Co., and Prescott in Pierce Co.

120. **D. jugatorium** Say. Numerous specimens from the mouth of the Nemakagon River, Swiss, the mouth of the Yellow River and Randall in Burnett Co.; Prescott and Maiden Rock in Pierce Co.

Anthidium Fabricius.

121. **A. chippewaense** Graen. Types from Pine Co. in Minnesota, paratypes from the mouth of the Yellow River in Burnett Co. in Wisconsin. This is extremely close to *A. cockerelli* Titus, and may be considered an eastern representative of that species. Titus described his species as a *Protanthidium.* Prof. T. D. A. Cockerell, to whom a specimen of *A. chippewaense* was sent, kindly informed me that the latter is a *"Heteranthidium,* related to *occidentale* and *zebratum."* *Protanthidium* is an Asiatic genus.

Osmia Panzer.

122. **O. atriventris** Cress. Solon Springs in Douglas Co.; Fishtrap, mouth of the Nemakagon River, and mouth of the Yellow River in Burnett Co.

123. **O. simillima** Sm. Solon Springs and St. Croix Dam in Douglas Co.; Pansy and mouth of the Yellow River in Burnett Co., and Hudson in St. Croix Co.

124. **O. canadensis** Cress. A ♀ taken at Gordon in Douglas Co.

125. **O. bucephala** Cress. This and the foregoing species are rarely met with in Wisconsin. One ♀ of *bucephala* from Solon Springs in Douglas Co.

Monumetha Cress.

126. **M.** albifrons **~~borealis~~** Ky. ~~Cress.~~ Not uncommon at Solon Springs in Douglas Co.

Alcidamea Cresson.

127. **A. simplex** Cress. Occurs throughout our region. Specimens from Solon Springs in Douglas Co.; Randall in Burnett Co., Hudson in St. Croix Co.; Prescott and Maiden Rock in Pierce Co.

128. **A. truncata** Cress. Much rarer than the preceding species. Gordon in Douglas Co., and mouth of the Yellow River in Burnett Co.

Andronicus Cresson.

129. **A. cylindricus** Cress. Solon Springs in Douglas Co.; mouth of the Yellow River in Burnett Co.; Hudson in St. Croix Co.; Prescott and Maiden Rock in Pierce Co.

Ashmeadiella Cockerell.

130. **A. denticulata** Cress. Specimens from Swiss, the mouth of the Yellow River and Randall in Burnett Co.

Heriades Spinola.

131. **H. carinatus** Cress. A widely distributed species, common in Wisconsin. Taken at Solon Springs, Gordon and St. Croix

Dam in Douglas Co.; the mouth of the Yellow River, Kettle River Rapids and Randall in Burnett Co.; Never's Dam in Polk Co.; Hudson in St. Croix Co.; Prescott and Maiden Rock in Pierce Co.

Megachile Latreille.

132. **M. pugnata** Say. This is an oligotropic visitor of the *Compositae*. Specimens from Solon Springs, Gordon and St. Croix Dam in Douglas Co.; Fishtrap, the mouth of the Nemakagon River, Swiss and the mouth of the Yellow River in Burnett Co.; Hudson in St. Croix Co.

133. **M. infragilis** Cress. Solon Springs, St. Croix Dam and Coppermine Dam in Douglas Co.; Nemakagon River, mouth of the Yellow River and Kettle River Rapids in Burnett Co.

134. **M. sexdentata** Rob. A ♂ from Prescott in Pierce Co.

135. **M. montivaga** Cress. Specimens from Solon Springs and St. Croix Dam in Douglas Co.; the mouth of the Nemakagon River, Swiss, the mouth of the Yellow River and Randall in Burnett Co.

136. **M. wootoni** Ckll. Determined by Prof. Cockerell. Common at Solon Springs in Douglas Co.

137. **M. brevis** Say. Solon Springs in Douglas Co.; Hudson in St. Croix Co.; Prescott in Pierce Co., and Fountain City in Buffalo Co.

138. **M. fortis** Cress. One ♂ of this western species was taken at Maiden Rock in Pierce Co.

139. **M. latimanus** Say. This species is met with everywhere in our state. Specimens from Solon Springs in Douglas Co.; the mouth of the Yellow River and Randall in Burnett Co.; Farmington in Polk Co.; Hudson in St. Croix Co.; Prescott and Maiden Rock in Pierce Co., and Fountain City in Buffalo Co.

140. **M. vidua** Sm. Solon Springs in Douglas Co.; mouth of the Nemakagon River and mouth of the Yellow River in Burnett Co.; Hudson in St. Croix Co., and Fountain City in Buffalo Co.

141. **M. mendica** Cress. Taken at Solon Springs in Douglas Co.; Randall in Burnett Co.; Hudson in St. Croix Co., and Fountain City in Buffalo Co.

142. **M. campanulae** Rob. The ♀ collects its pollen from the flowers of *Campanula americana.* Specimens from Solon Springs in Douglas Co., and Randall in Burnett Co.

143. **M. pruina** Sm. Randall in Burnett Co.

Melissodes Latreille.

144. **M. agilis** Say. Very common. Taken at the mouth of the Yellow River and Randall in Burnett Co.; Farmington in Polk Co.; Hudson in St. Croix Co.; Prescott and Maiden Rock in Pierce Co. Like the following this bee obtains its pollen from various species of *Compositae.*

145. **M. trinodis** Rob. (?**pennsylvanica** Lep.). Mouth of the Yellow River and Randall in Burnett Co.; Farmington in Polk Co.; Hudson in St. Croix Co.

146. **M. rustica** Say. St. Croix Dam in Douglas Co.; mouth of the Nemakagon River, Swiss, mouth of the Yellow River and Randall in Burnett Co.; Farmington in Polk Co.; Hudson in St. Croix Co., and Maiden Rock in Pierce Co.

147. **M. vernoniae** Rob. Taken on the flowers of *Vernonia fasciculata* at Hudson in St. Croix Co., Prescott and Maiden Rock in Pierce Co.

148. **M. cnici** Rob. (?**desponsa** Sm.). The ♀♀ collect their pollen from the flowers of thistles. Specimens from Randall in Burnett Co.; Never's Dam and Farmington in Polk Co.; Hudson in St. Croix Co.; Prescott and Maiden Rock in Pierce Co.

149. **M. bimaculata** Lep. Prescott and Maiden Rock in Pierce Co.

150. **M. obliqua** Say. Collecting pollen mostly from the flowers of *Lepachys pinnata,* but also from those of *Rudbeckia hirta* and *R. laciniata.* Taken at Hudson in St. Croix Co.; Prescott and Maiden Rock in Pierce Co.

Xenoglossa Smith.

151. **X. strenua** Cress. Two ♂♂ and one ♀ were collected at Hudson in St. Croix Co. on the flowers of *Cirsium arvense,* sucking. The ♀♀ of this genus collect pollen from the flowers of *Cucurbitaceae.*

Anthophora Latreille.

152. **A. bomboides** Kirby. A boreal species. Taken at Solon Springs in Douglas Co. on the flowers of *Apocynum androsaemifolium.*

153. **A. walshii** Cress. One ♂ taken at the mouth of the Yellow River in Burnett Co. on the flowers of *Rudbeckia hirta.* The ♀ gets her pollen, according to Robertson, from the flowers of *Cassia Chamaecrista,* a plant frequently met with along the St. Croix and Mississippi Rivers. In the region considered in this paper this bee seems to be rather scarce, and the ♂ referred to above is the only specimen I have seen.

Clisodon Patton.

154. **C. terminalis** Cress. This bee is not uncommon in Wisconsin. Specimens from Solon Springs and Gordon in Douglas Co.; the mouth of the Nemakagon River, Swiss, the mouth of the Yellow River, Kettle River Rapids and Randall in Burnett Co.; Maiden Rock in Pierce Co., and Fountain City in Buffalo Co.

Ceratina Latreille.

155. **C. dupla** Say. One of the most common bees throughout the state. Taken at Solon Springs in Douglas Co.; the mouth of the Yellow River and Randall in Burnett Co.; Never's Dam in Polk Co.; Hudson in St. Croix Co.; Prescott and Maiden Rock in Pierce Co.; Fountain City in Buffalo Co.

Psithyrus Lepeletier.

156. **P. variabilis** Cress. Taken at Solon Springs and Coppermine Dam in Douglas Co.; the mouth of the Nemakagon River and the mouth of the Yellow River in Burnett Co.

157. **P. laboriosus** Fab. Maiden Rock in Pierce Co.

Bombus Latreille.

158. **B. huntii** Greene=**ternarius** Say. This and the following two species were the dominant bumblebees in Douglas Co., especially at Solon Springs. Taken besides at Fishtrap, mouth of the Nemakagon River and the mouth of the Yellow River in Burnett Co., and Never's Dam in Polk Co.

159. **B. terricola** Kirby. Solon Springs and St. Croix Dam in Douglas Co.; Fishtrap, mouth of the Nemakagon River, mouth of the Yellow River and Randall in Burnett Co.

160. **B. consimilis** Cress. Solon Springs, Gordon, St. Croix Dam and Coppermine Dam in Douglas Co.; mouth of the Nemakagon River, Swiss and mouth of the Yellow River in Burnett Co.; Farmington in Polk Co.; Maiden Rock in Pierce Co., and Fountain City in Buffalo Co.

161. **B. pennsylvanicus** Deg.=**fervidus** Fab. Specimens from the mouth of the Yellow River in Burnett Co.; Never's Dam in Polk Co., and Maiden Rock in Pierce Co.

162. **B. impatiens** Harr.=**virginicus** Oliv. Hudson in St. Croix Co.; Prescott and Maiden Rock in Pierce Co., and Fountain City in Buffalo Co.

163. **B. americanorum** Fab. This seems to be more common in the southern parts of the state than in the northern. Taken at the mouth of the Yellow River in Burnett Co.; Hudson in St. Croix Co.; Prescott and Maiden Rock in Pierce Co., and Fountain City in Buffalo Co.

164. **B. borealis** Kirby. Specimens from Gordon in Douglas Co.; the mouth of the Nemakagon River, Swiss and the mouth of the Yellow River in Burnett Co. This species belongs to the boreal region, and occurs probably throughout the northern parts of our state. There is a ♀ in the collection of the Public Museum of Milwaukee from Divide in Vilas Co., and one from Jacksonport in Door Co.

Bombias Robertson.

165. **B separatus** Cress. Rather common in some parts of the state. Taken at Solon Springs in Douglas Co.; the mouth of the Yellow River and Randall in Burnett Co.; Hudson in St. Croix Co.; Prescott and Maiden Rock in Pierce Co., and Fountain City in Buffalo Co.

166. **B. auricomus** Rob. This species does not seem to be represented in the northern counties. Specimens from Hudson in St. Croix Co., and Prescott in Pierce Co.